CLAIMS:

1. An authentication system including a plurality of optical authentication devices and at least one inspection device;

each optical authentication device including an optical layer including a representation of a first image visually encrypted under control of an encryption key, where the encrypted first image uniquely identifies the respective authentication device; and

the inspection device being operative to decrypt the optical layer of the optical authentication device under control of the encryption key and to visualize the first image to enable verification of the unique identification of the authentication device.

2. A system as claimed in claim 1, wherein the first image is unique for the optical authentication device and/or user of the authentication device.

3. A system as claimed in claim 2, wherein the first image represents biometrical data, such as a photograph, fingerprint or iris scan, of a user of the authentication device.

4. A system as claimed in any one of the preceding claims, wherein the optical layer includes a plurality of polarized cells representing a second image; the inspection device being operative to apply a polarization to the optical layer to enable viewing of the representation of the second image; the first image being visually encrypted into the cells representing the second image and only being visible after visual decryption.

5. A system as claimed in claim 4, wherein the encryption key describes for each cell of the optical layer a rotation of a polarization of light; the inspection device being operative to apply to light passing through each cell of the optical layer the rotation prescribed by the encryption key to reveal a representation of the first image; the first image being visually encrypted into the second image by for each cell of the optical layer determining a rotation of a polarization of light passing through the cell in dependence on a pixel value of a corresponding pixel of the second image, a pixel value of a corresponding pixel of the first image and a rotation prescribed by the encryption key for the cell.

6. A system as claimed in claim 4 or 5, wherein for each cell of the optical layer the rotation is determined by:

assigning the corresponding pixel of the second image a distinct rotation value depending on an intensity of the pixel; and

adjusting the rotation value with a positive or negative rotation depending on a pixel value of first image and the encryption key.

7. A system as claimed in claim 6, wherein the second image is a two color-value image; the distinct rotation values being 0° and 90° and the inspection device being operative to enable inspection of the second image by passing polarized light through the optical layer and a polarization filter; or the distinct rotation values being 0° and 45° and the inspection device being operative to enable inspection of the second image by passing light through a polarization filter and through the optical layer onto a reflective layer.

8. A system as claimed in claim 7, wherein first image is a two color-value image and the rotation value is adjusted approximately plus or minus 30°.

9. A system as claimed in any one of the preceding claims, wherein for each authentication device the encryption is under control of a unique encryption key associated with the authentication device; the system including a storage for storing for each authentication device the associated encryption key; the inspection device being operative to retrieve for each authentication device the associated encryption key from the storage.

10. A system as claimed in claim 9, wherein for each authentication device the respective second image includes information identifying the respective unique encryption key.

11. A system as claimed in claim 10, wherein the inspector device includes an LCD layer with a plurality of LCD cells arranged to co-operate with the cells of the optical layer; the inspection device being operative to set each cell of the LCD according to a rotation prescribed by the encryption key for a corresponding cell of the area.

12. A system as claimed in any one of the preceding claims, wherein the inspector device includes:

an input device for loading the encrypted first image; and

a processor for, under control of a program, loading the decryption key and decrypting the loaded encrypted first image for subsequent rendering of the decrypted first image on a display.

13. A system as claimed in claim 12, wherein the rotation value is adjusted less than 10° modulo 90°.

14. A system as claimed in any one of the preceding claims, wherein the second and first image are linked by a verifiable association.

15. A system as claimed in claim 14, wherein the link is based on an identity of a user of the authentication device.

16. A system as claimed in any one of the preceding claims, wherein the second image represents readable information, such as name, user identity number, or identity number of the authentication device, that is associated with an identity of the user.

17. An optical authentication device for use in an authentication system as claimed in claim 1, the optical authentication device including an optical layer including a representation of a first image visually encrypted under control of an encryption key, where the encrypted first image uniquely identifies the authentication device.

18. An inspection device for use in an authentication system as claimed in claim 1, for inspection of an optical authentication device that includes an optical layer including a representation of a first image visually encrypted under control of an encryption key, where the encrypted first image uniquely identifies the authentication device; the inspection device being operative to decrypt the optical layer of the optical authentication device under control of the encryption key and to visualize the first image to enable verification of the unique identification of the authentication device.

19. A method of hiding a first image in a second image in an optical layer of an optical authentication device where the optical layer includes a plurality of polarized cells; the method including:

obtaining a visual encryption key that describes for each cell of the area a respective rotation of a polarization of light;

visually encrypting the first image into the second image by, for each cell of the optical layer, determining a respective rotation of a polarization of light passing through the cell in dependence on a pixel value of a corresponding pixel of the second image, a pixel value of a corresponding pixel of the first image and a rotation prescribed by the encryption key for the cell; the encrypted first image uniquely identifying the optical authentication device; and

applying the determined rotations to the respective cells of the optical layer.